

(12) UK Patent Application (19) GB (11) 2 366 790 (13) A

(43) Date of A Publication 20.03.2002

(21) Application No 0019743.4

(22) Date of Filing 10.08.2000

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(51) INT CL⁷
B65D 55/06 41/28

(52) UK CL (Edition T)
B8T TCM TTB

(56) Documents Cited
GB 2222399 A
US 4640427 A

GB 1521352 A

(58) Field of Search

UK CL (Edition T) B8T TCM TCP TTB
INT CL⁷ B65D 41/28 41/32 50/00 50/02 55/06 55/08
ONLINE: WPI, JAPIO, EPDOC

(54) Abstract Title

Tamper evident closure

(57) A closure 4 for a container 1 comprises a bung portion 5 and a plurality of tabs 7, 8; the tabs are securable to a container 1 to which the closure 4 is fitted in use, so as to prevent the removal of the closure 4 from the container 2 without detaching at least one of the tabs 7, 8, from the container 2, or severing at least one of the tabs 7, 8, from the remainder of the closure 4. The tabs 7, 8 may be connected to the closure 4 by a readily breakable web 9, whereby the closure 4 may be removed from the container 2 by severing the web 9. The tabs 7, 8 may be secured to the container by adhesive or by a welding process, each tab 7, 8 may also have a flap (fig 2,10) to facilitate deliberate removal of the tabs 7, 8 from the surface of the container 2.

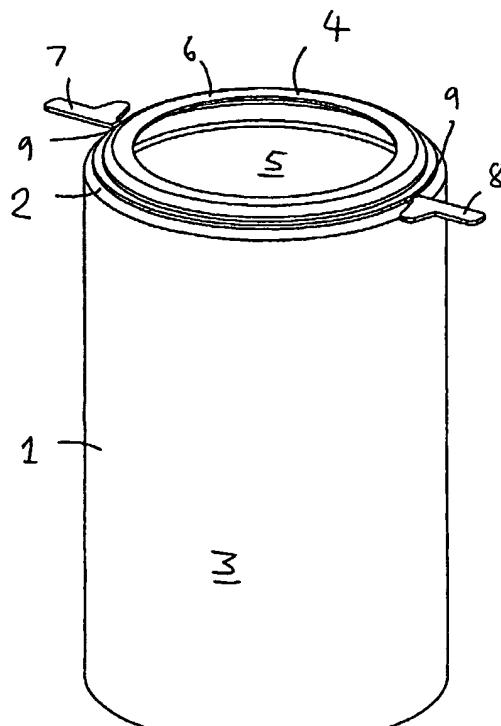


Fig 1

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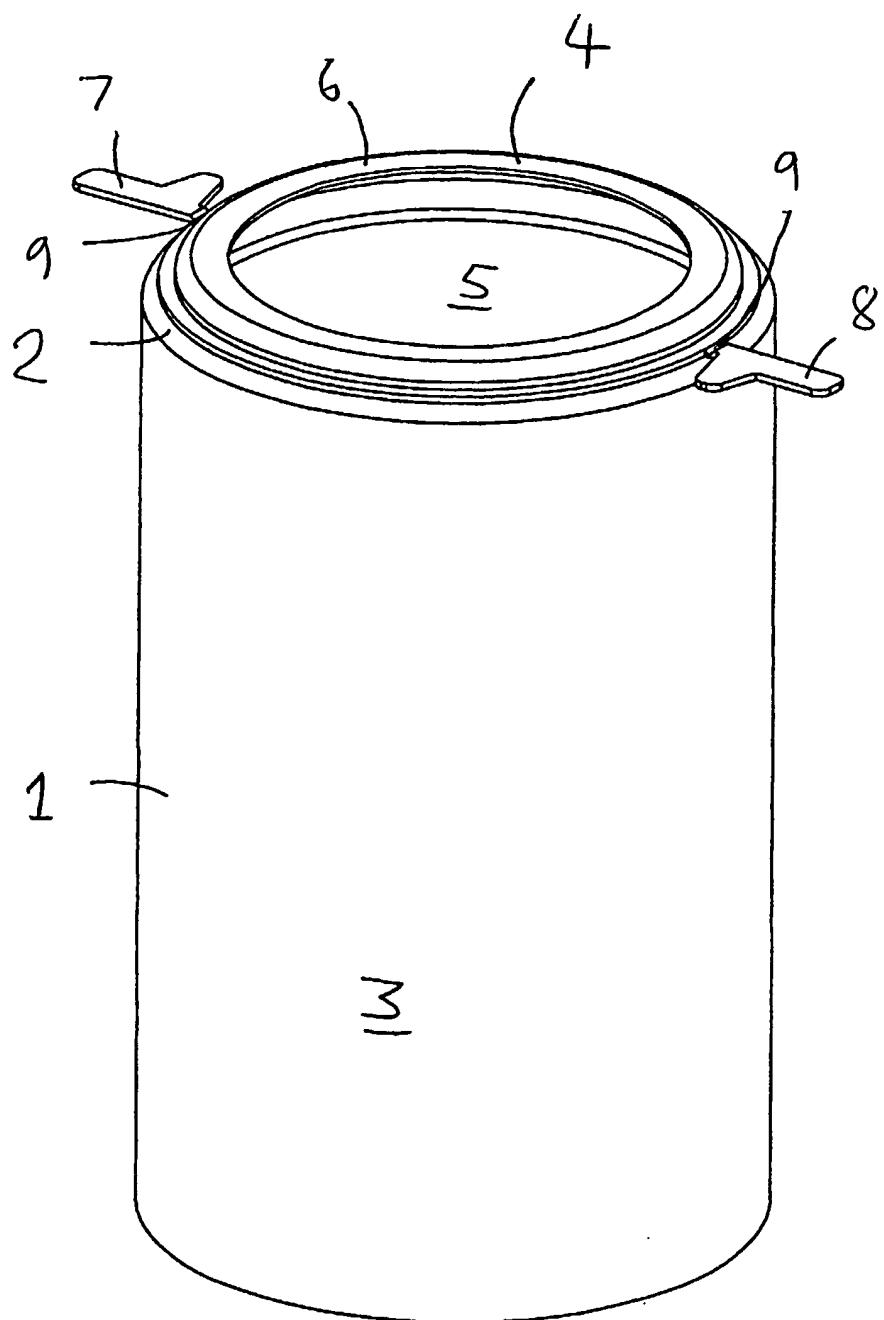


Fig 1

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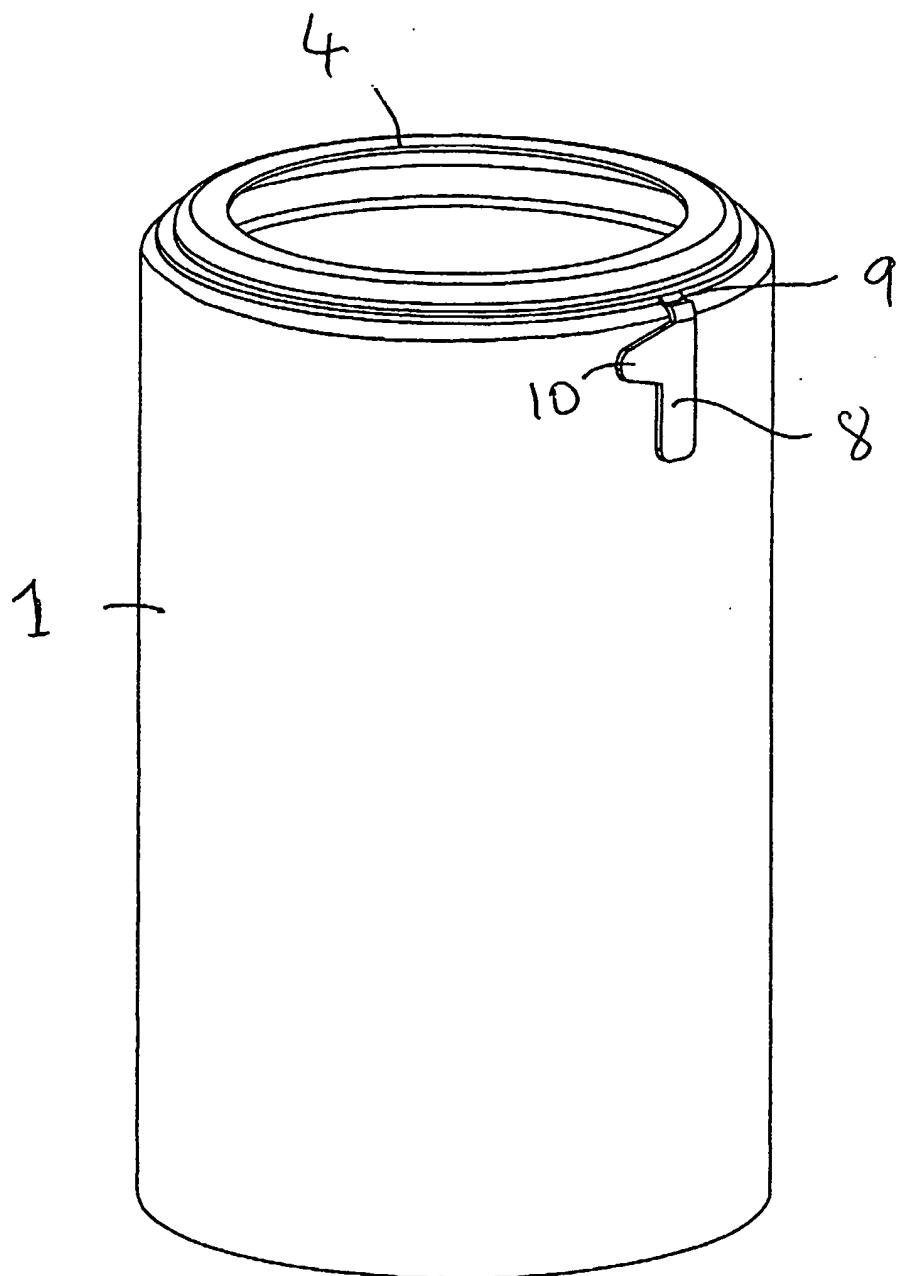


Fig 2

TAMPER EVIDENT CLOSURE

This invention relates to a tamper evident closure, and more particularly to a tamper evident closure suitable for a drum-like container.

Drum-like containers (that is containers in the form of a right circular cylinder having a closed base and an open top) are commonly used for the packaging of granular and powder products, particularly food products, for retail sale. Such containers may be formed of cardboard or of plastics material and can conveniently be closed by means of a plastics bung which forms a press-fit within the mouth of the container. Such closures can be designed for a good mechanical fit with the drum enabling them to be repeatedly removed and replaced as the contents of the container are used over a period of time. Containers and closures of this type have well recognised advantages for both manufacturer and consumer.

One problem with this type of container, however, is that it cannot readily be made tamper evident. It is highly desirable for containers for food products which are offered for retail sale in supermarkets to be tamper evident.

Existing techniques for rendering containers and closures of the type described above tamper evident have included the use of a shrink-band which is applied after the container has been filled and which must be removed before the closure can be removed from the drum, and the use of an adhesive label which is attached to the closure and to the drum and must be broken before the closure can be removed. The use of a shrink-band is unsatisfactory since the inherent cylindrical shape of the container, coupled with the fact that the surface of the container is generally glazed, means that the shrink-band can, with care, be removed from the container and

replaced without damaging the shrink-band. Accordingly, it does not provide the required degree of tamper-evidence. The use of an adhesive label likewise does not provide any high degree of tamper evidence. Under some circumstances it may be possible to peal the label from the surface of the closure or container and re-apply it after tampering with the contents. Alternatively, if the label is cut cleanly at the juncture of the container and the closure the portion adhered to the closure can be removed cleanly and the fact that the label once extended over the closure will not be readily apparent to purchasers of the goods in question.

Both the shrink-band and the adhesive label solutions referred to above are also unsatisfactory in that they require the use of a component (a shrink-band or label) separate from the two main components (container and closure). This use of a third component considerably increases the filling time and filling costs of containers and can lead to an increase in product rejection at a quality control stage as a result of incorrect application of the third component.

We have now devised a tamper evident system for containers (particularly drum containers) which is simple, reliable, low cost, and does not require the use of a component separate from the main container/closure components.

According to the present invention a closure for a container comprises a bung portion and a plurality of tabs extending from the periphery of the bung portion, the tabs being securable to a container to which the closure is fitted to prevent removal of the closure from the container without detaching at least one of the tabs from the container or severing at least one of the tabs from the remainder of the closure.

Preferably, at least one of the tabs is connected to the remainder of the closure by a readily breakable web whereby the closure may be removed from the mouth of the container by severing the web and leaving the tabs secured to the container. Preferably, the closure, including the tabs is an integral plastics moulding.

The tabs may be secured to the container by any suitable means, for example by means of adhesive or by a welding process.

The above and further features and advantages of the invention will become clear from the following description of a preferred embodiment thereof; given by way of example only, reference being had to the accompanying drawings wherein:

FIGURE 1 is a schematic prospective view of a preferred embodiment; and

FIGURE 2 is a view corresponding to Figure 1 showing a container and closure after tabs have been secured to the container.

Referring to the drawings, there is illustrated a drum-like container 1. As will be appreciated by those skilled in the art, drum-like containers may be formed of cardboard surrounding a mouth at the upper end of the container (as illustrated in Figure 1). The base of the container is closed by suitable means, for example a disc of cardboard. The outer surface 3 of the container will in general carry advertising and product information. The container 1 may be of an entirely conventional design - no special modification of the container is required to make use of the present invention.

As illustrated, the mouth of the container is closed by means of a closure 4 which comprises a bung portion 5 which is a press fit within the mouth of the container. The closure includes an inwardly directed flange 6 which enables the closure to be readily removed from the mouth of the container by tabs pressure.

In accordance with the present invention the closure 4 is provided with two tabs 7, 8 each integral with the remainder of the closure and connected thereto by a thin web 9 of material. The closure, including the tabs 7, 8 may be moulded by conventional techniques from any suitable plastics material. The closure is (except for the tabs 7, 8) of conventional design and may be applied to the container 1 after filling using conventional packaging machinery.

After the closure has been pressed into the mouth of the container the tabs 7, 8 are bent downward and are secured to the outer surface of the drum (as illustrated in Figure 2) by any suitable means. Typically, the tabs may be secured to the surface of the drum by means of an adhesive or by a welding process. The webs 9 are shaped to permit the tabs to overlie a bead 2 and rest against the outer surface 3 of the container.

In the configuration shown in Figure 2 and closure 4 cannot be removed from the container 1 unless one of the tabs 7, 8 is removed from the container or a web 9 of one of the tabs 7, 8 is broken. Removing a tab from the container or breaking a web 9 will provide tamper-evidence.

If desired, tabs may be provided with a flap 10 to facilitate deliberate removal of the tabs from the surface of the container by the application of tabs pressure.

It will be appreciated that the above described tamper evident technique does not involve the use of any additional component over and above the container and the closure. The additional plastics material required for provision of the tabs results in a minimal increase in the unit cost of the closures. The tabs may be secured to the surface of the container by any convenient means and the act of securing the tabs to the container should not materially reduce the speed of filling the lines. Further, provided that the filled containers are orientated within an outer box in a manner such that the tabs lie in the natural interstices between the containers, the existence of the tabs does not increase the packaging space required for a given number of containers.

The invention is not limited to the specific embodiments described above. Alternative arrangements and suitable materials will be apparent to a reader skilled in the art. For instance, the container and associated closure may be of a non-circular shape (e.g. square, triangular or oval) and the container need not be provided with a beaded shoulder. Furthermore, the container may be manufactured from a plastics material rather than cardboard.

CLAIMS:

1. A closure for a container, the closure comprising a bung portion and a plurality of tabs extending from the periphery of the bung portion, the tabs being securable to a container to which the closure is fitted in use so as to prevent removal of the closure from the container without detaching at least one of the tabs from the container or severing at least one of the tabs from the remainder of the closure.
2. A closure as claimed in claim 1, wherein at least one of the tabs is connected to the remainder of the closure by a readily breakable web whereby the closure may be removed from the mouth of the container by severing the web and leaving the tabs secured to the container.
3. A closure as claimed in claim 1 or 2, wherein the tabs and the remainder of the closure are an integral moulding of a plastics material.
4. A closure as claimed in any of the preceding claims, wherein the tabs are securable to a container by means of adhesive.
5. A closure as claimed in any of claims 1 to 3, wherein the tabs are securable to a container by means of a welding process.
6. A closure as claimed in any of the preceding claims, wherein each tab is provided with a flap to facilitate deliberate removal of the tabs from the surface of the container.



INVESTOR IN PEOPLE

Application No: GB 0019743.4
Claims searched: 1-6

Examiner: Darren Williams
Date of search: 14 January 2002

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.T): B8T (TCM, TCP, TTB)

Int Cl (Ed.7): B65D 41/28, 41/32, 50/00, 50/02, 55/02, 55/06, 55/08

Other: Online: WPI, JAPIO, EPODOC

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
Y	GB 2222399 A (MAUSER-WERKE) see whole document	1-6
Y	GB 1521352 (JOHNSON) see whole document	1-6
Y	US 4640427 (MARINO) see whole document	1-6

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.